



550500

(43) International Publication Date
30 September 2004 (30.09.2004)

PCT

(10) International Publication Number
WO 2004/083113 A1

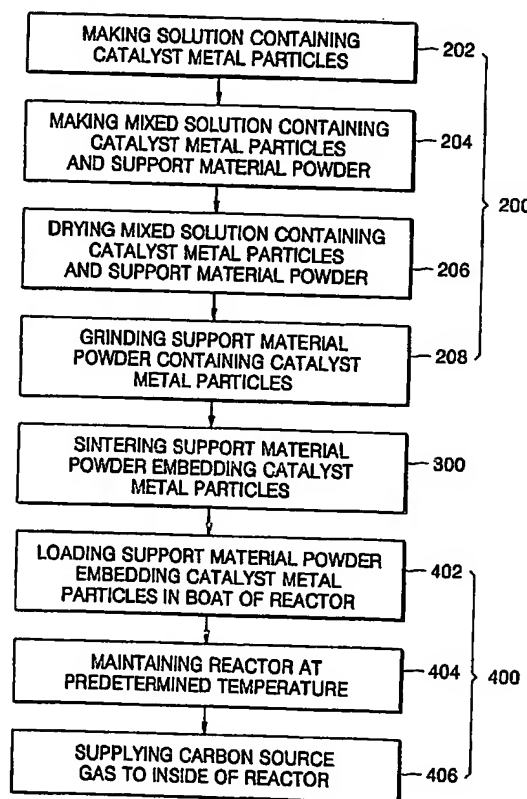
- (51) International Patent Classification⁷: **B82B 3/00**
- (21) International Application Number:
PCT/KR2004/000577
- (22) International Filing Date: 17 March 2004 (17.03.2004)
- (25) Filing Language: Korean
- (26) Publication Language: English
- (30) Priority Data:
10-2003-0017616 20 March 2003 (20.03.2003) KR
10-2004-0017644 16 March 2004 (16.03.2004) KR

- (71) Applicant and
(72) Inventor: LEE, Cheol-Jin [KR/KR]; 304-1004 Hyundai
3cha Apt., Nawoon2-dong, Gunsan-city, Jeollabuk-do
573-352 (KR).
- (74) Agent: LEE, Young-Pil; The Cheonghwa Bldg., 1571-18
Seocho-dong, Seocho-gu, Seoul 137-874 (KR).

- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: MASSIVE SYNTHESIS METHOD OF DOUBLE-WALLED CARBON NANOTUBES USING THE VAPOR PHASE GROWTH



(57) Abstract: A method of massively synthesizing double-walled carbon nanotubes is provided. In the method, catalyst metal particles having a size of a few nanometers are embedded in nano pores of a support material powder. Then, the support material powder embedding the catalyst metal particles is sintered at a temperature of 700-900°C. Then, the support material powder embedding the catalyst metal particles is loaded in a reactor. Thereafter, high purity double-walled carbon nanotubes are formed massively by vaporizing a carbon source solution at a temperature of 700-1100°C and supplying the vaporized carbon source gas, or by directly supplying a carbon source gas to the reactor.



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.